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Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

Fifty-third session
Geneva, 25 June–4 July 2018
Item 5 (b) of the provisional agenda
Transport of gases: miscellaneous

Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals

Thirty-fifth session
Geneva, 4-6 July 2018
Item 2 of the provisional agenda
Joint work with the Sub-Committee of Experts on the Transport of Dangerous Goods (TDG Sub-Committee)

Update of reference to ISO 10156 in the Model Regulations and in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Transmitted by the European Industrial Gases Association (EIGA)*

Introduction

1. The standard ISO 1056:2010 "Gas cylinders - Gases and gas mixtures - Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets" is a reference document in Chapter 2.2 (Class 2: Gases) of the Model Regulations and in chapters 2.2 (Flammable gases) and 2.4 (Oxidising gases) of the GHS.

2. As part of the 5-yearly periodic review of all standards, ISO 1056:2010 has been reviewed and a new revision ISO 10156:2017 was published in September 2017.

3. Apart from some editorial changes to suit the ISO publication rules, there is no change compared to the 2010 version with regard to the test method to determine the low flammability limits (Li) of flammable gases and vapours including mixtures and the calculation method to determine if gas mixtures containing flammable gases and vapours

* In accordance with the programme of work of the Sub-Committee for 2017–2018 approved by the Committee at its eighth session (see ST/SG/AC.10/C.3/100, paragraph 98 and ST/SG/AC.10/44, paragraph 14).

should be considered as non-flammable. The tables with Li and Tci values are unchanged from the 2010 version and the calculation examples in 2.2.5 and 2.4.4.2 of the GHS remain valid.

4. On the other hand, the standard has been supplemented with:

(a) a test method the determine the flammability limits of gases and gas mixtures in air;

(b) a calculation method to determine the lower flammability limit of a gas mixture. This additional calculation method is needed to distinguish a flammable gas, Category 1A from a flammable gas, Category 1B, in accordance with the new GHS criteria.

Proposals

5. In the Model Regulations, Chapter 2.2, paragraphs 2.2.3 (a) and 2.2.3 (d):

Replace "ISO 10156:2010" with "ISO 10156:2017"

6. In the GHS, Chapter 2.2, paragraphs 2.2.4.2.1, 2.2.4.2.4 and 2.2.5, and in Chapter 2.4, paragraphs 2.4.4.1 and 2.4.4.2:

Replace "ISO 10156:2010" with "ISO 10156:2017".

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Sub-Committee of Experts on the Transport of Dangerous Goods

Fifty-third session
Geneva, 25 June-4 July 2018
Item 4 (e) of the provisional agenda
Electric storage systems: sodium-ion batteries

Sodium-ion batteries

Transmitted by the expert from the United Kingdom*

Introduction

1. At the fifty-second session of the Sub-Committee the expert from the United Kingdom presented informal document INF.11 which:

(a) Provided a background to sodium-ion battery technology;

(b) Explained the differences in comparison to lithium-ion battery technology;

(c) Explained the similarities between a shorted sodium-ion battery and a super capacitor; and

(d) Discussed the options for how they might be addressed in the Model Regulations.

2. The presentation demonstrated that cells and batteries based on sodium-ion technology which are shorted or discharged pose no safety concern to people, property or the environment during carriage. Nevertheless, such cells and batteries may be wrongly assumed to be hazardous by people in the transport chain. Therefore the Sub-Committee agreed that the Model Regulations should refer to them.

3. This document contains a proposal for shorted and discharged sodium-ion cells and batteries for consideration at this session and seeks views on follow-up work on an approach for their carriage when charged.

* In accordance with the programme of work of the Sub-Committee for 2017–2018 approved by the Committee at its eighth session (see ST/SG/AC.10/C.3/100, paragraph 98 and ST/SG/AC.10/44, para. 14).

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Background

4. The proposal made below solely addresses sodium-ion cells and batteries that are shorted or discharged. The ease with which these batteries can be shorted and the resultant minimising of any risk during transport means that this is the condition in which most commercial consignments will be shipped. The inclusion of this proposal in the twenty-first revised edition of the Model Regulations would be timely for this emerging technology.

Proposal

5. For UN No. 3292, insert a new special provision "XXX" in Column (6) of the Dangerous Goods List in Chapter 3.2.

6. Add a new special provision "XXX" in Chapter 3.3 as follows:

"XXX Sodium-ion cells and batteries offered for transport either loose or installed in equipment are not subject to other provisions of these Regulations if they meet the following:

(a) Cells and batteries are transported in a shorted or discharged state;

(b) Cells, batteries and equipment containing cells and/or batteries are packed in packaging that meets the general provisions of 4.1.1.1 and 4.1.1.2, large robust batteries may be transported on pallets or in suitable handling devices."

Follow-up work for future sessions

7. In accordance with the Sub-Committee's advice from the fifty-second session, the expert from the United Kingdom will return with further information and proposals to address the safe transport of sodium-ion batteries in a charged state, taking account of their electrical and chemical hazards and applicable test methods.

8. In taking this matter forward, the expert from the United Kingdom is considering making a proposal for the next session for adding provisions to packing instruction P408 for charged sodium ion batteries that would restrict carriage to packaging that, in the event of one cell or battery entering into a state of thermal runaway:

(a) Other batteries in the package will not go into thermal runaway;

(b) Packaging material will not ignite; and

(c) The outside surface temperature of the completed package shall not exceed 100°C.

9. The expert from the United Kingdom would welcome early feedback on this possible approach.

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Sub-Committee of Experts on the Transport of Dangerous Goods

Fifty-third session
Geneva, 25 June-4 July 2018
Item (3) of the provisional agenda
Listing, classification and packing

Viscous liquids not subject to the regulation

Submitted by the expert from Spain*

Introduction

1. Viscous liquids, according to 2.3.2.5.1 of the Model Regulations, are not subject to those Regulations if they have a "flash point of 23 °C or above and less than or equal to 60 °C" and fulfil several other conditions, if additionally the results of two tests (solvent separation test and viscosity test) are in between different values:

"2.3.2.5.1 Except as provided for in 2.3.2.5.2, viscous liquids which:

- have a ***flash point of 23 °C or above and less than or equal to 60 °C***;
- are not toxic, corrosive or environmentally hazardous;
- contain not more than 20% nitrocellulose provided the nitrocellulose contains not more than 12.6% nitrogen by dry mass; and
- are packed in receptacles of not more than 450 litre capacity;

are not subject to these Regulations, if:

(a) in the solvent separation test (see *Manual of Tests and Criteria*, Part III, sub-section 32.5.1), the height of the separated layer of solvent is less than 3% of the total height; and

* In accordance with the programme of work of the Sub-Committee for 2017–2018 approved by the Committee at its eighth session (see ST/SG/AC.10/C.3/100, paragraph 98 and ST/SG/AC.10/44, para. 14).

(b) the flowtime in the viscosity test (see Manual of Tests and Criteria, Part III, sub- section 32.4.3), with a jet diameter of 6 mm is equal to or greater than:

(i) 60 seconds; or

(ii) 40 seconds if the viscous liquid contains not more than 60% of Class 3 substances."

2. In the Manual of Tests and Criteria, it is indicated for the solvent separation test in 32.5.1 that this test is used to determine the extent of solvent separation in viscous liquids with a ***flash point of less than 23 °C***.

3. Therefore, in the cases in which paragraph 2.3.2.5.1 of the Model Regulations obliges to do the test (flash point of 23 °C or above and less than or equal to 60 °C), the solvent separation test as indicated under 32.5.1 of the Manual of Tests and Criteria is never in the range that makes it applicable.

4. According to our experts, the flash point of the liquid is not a critical factor for being able to carry out the solvent separation tests, and it would be possible to carry out this test for liquids with a flash point of above 23 °C. Therefore, the expert from Spain would suggest amending paragraph 32.5.1.1 of the Manual of Tests and Criteria by eliminating the temperature range for this test.

Proposal

5. It is proposed to amend 32.5.1.1 of the Manual of Tests and Criteria in the following way (deleted text **~~stricken through and bold~~**):

"32.5.1.1 Introduction

This test is used to determine the extent of solvent separation in viscous liquids such as paints, enamels, varnishes, adhesives and polishes **~~with a flash point of less than 23C~~**."